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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,216	09/24/2003	Yasuhiro Yoneda	1422-0603P	1568
2292 7590 12/28/2006 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER MARCHESCHI, MICHAEL A	
			ART UNIT	PAPER NUMBER
			1755	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		12/28/2006	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 12/28/2006.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

## Office Action Summary

Application No.

10/668,216

Applicant(s)

YONEDA ET AL.

Examiner

Michael A. Marcheschi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☒ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 7 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The limitation that the substrate is a polysilicone substrate is new matter because the specification supports polysilicon and not polysilicone.

Claims 9-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 9 defines that the substrate is a silicon dioxide, however, claim 7 never defines a silicon dioxide substrate. Claim 7 defines a silicon oxide film and although silicon dioxide and silicon oxide can be used interchangeably, the terms are not consistently defined. In addition, claim 7 states that a film is used but claim 9 does not define this.

The scope of claim 10 (type of substrate) is outside the scope of claim 7.

(1) Claims 1-4 and 6-10 are rejected under 35 U.S.C. 103(a) as being obvious over EP 1 036 836 in view of Liu et al. and/or Ina et al.

The EP reference teaches in sections [0038]-[0065], a polishing slurry for a semiconductor or other substrates (silicon, silicon dioxide or a Ni-P plated aluminum alloy substrate (see section [0087] and [0316]) having a pH of 10, comprising a combination of inorganic particles (silica, etc.) and polymer particles (thermoplastic resin). The polymer particles and inorganic particles have a size of 0.01 to 1 micron. The ratio of the mean particle size of the polymer particles to the mean particle size of the inorganic particles is also defined (can be 1). The content of both particles is also defined as a ratio.

Liu et al. teach in column 6, lines 62+ beneficial reasons to use colloidal abrasives.

Ina et al. teach in column 8, lines 54+ beneficial reasons to use colloidal abrasives.

The primary reference teaches a polishing slurry (bi-modal) which reads on the instant claims in view of the teaching of the individual particle sizes and the ratio of the mean particle size of the polymer particles to the mean particle size of the inorganic particles. In view of this, the claimed formula and therefore subject matter of claims 1, 2, 4, and 6-10 would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976). With respect to the colloidal silica limitation, the use of colloidal silica would have been obvious because both Liu et al. and Ina et al. teach beneficial reasons to use this material, thus one skilled in the art would have found it

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obvious to use this silica form in view of the beneficial reasons defined by these references. With respect to the limitation of claim 3, it is the examiners position that the polymers defined by this reference will have the claimed glass transition temperature absent evidence to the contrary.

(2) Claims 1-10 are rejected under 35 U.S.C. 103(a) as being obvious over EP 1 020 501 in view of Liu et al. and/or Ina et al. and further in view of EP 1 036 836.

The EP reference teaches in sections [0047]-[0057], a polishing slurry for a semiconductor or other substrates (silicon, silicon dioxide or a Ni-P plated aluminum alloy substrate (see section [0077], [0091] and [0094]), comprising a combination of inorganic particles (silica, etc.) and polymer particles (thermoplastic resin). The polymer particles and inorganic particles have a size of at least 0.01  $\mu\text{m}$  and the inorganic particles are smaller than the polymer particles. The ratio of the mean particle size of the polymer particles to the mean particle size of the inorganic particles is 0.01-0.95. The content of both particles is also defined.

Liu et al. teach in column 6, lines 62+ beneficial reasons to use colloidal abrasives.

Ina et al. teach in column 8, lines 54+ beneficial reasons to use colloidal abrasives.

The primary reference teaches a polishing slurry (bi-modal) which reads on the instant claims in view of the teaching of the individual particle sizes and the ratio of the mean particle size of the polymer particles to the mean particle size of the inorganic particles. The size ranges disclosed by the primary reference encompasses values which meet the claimed formula. In view of this, the claimed formula and therefore subject matter of claims 1, 2, 4, and 7-10 would have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because

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overlapping ranges have been held to be a prima facie case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549; *In re Wertheim* 191 USPQ 90 (CCPA 1976). With respect to the colloidal silica limitation, the use of colloidal silica would have been obvious because both Liu et al. and Ina et al. teach beneficial reasons to use this material, thus one skilled in the art would have found it obvious to use this silica form in view of the beneficial reasons defined by these references. With respect to the limitation of claim 3, it is the examiners position that the polymers defined by this reference will have the claimed glass transition temperature absent evidence to the contrary. With respect to the limitations of claim 5, since the particles are independent of one another, they must have the same zeta potential sign. With respect to the limitation of claim 6, the reference defines amounts for the inorganic and organic particles and although a ratio is not specifically defined, the claimed ratio is broadly encompassed by the reference defining a mixture. Finally, with respect to the pH, the primary reference states that the composition is used to polish semiconductor substrate and since it is known that the pH of the composition is dependent on the substrate to be polished (see page 18, lines 12+ of the instant specification), one skilled in the art would have appreciated and thus found the claimed pH obvious in the composition according to EP 1 020 501 because polishing compositions for semiconductors are known to have this pH, as shown by EP 1 036 836. In addition, although not for the broad composition, the primary reference, in section [0115], teaches that the composition has a pH of 8.5 and the skilled artisan would have therefore appreciated that the pH of the broad composition of this reference should be consistent with the pH defined in this section.

Applicant's arguments filed 10/16/06 have been fully considered but they are not persuasive.

With respect to the rejections above, applicants appear to argue that both EP references only discloses fumed silica (see examples). The examiner acknowledges this, however, an obviousness determination for the use of colloidal silica has been established (see above) which applicants have not argued. In addition, the claims of EP 501 do not limit the type of the silica and claim 8 of EP 836, which defines the use of silica, does not limit the type of the silica. In view of this the use of any inorganic silica, such as, colloidal silica, would have been obvious motivated by the fact that the Liu et al. and/or Ina et al. teaches discloses beneficial reasons for using this type of silica. Applicants have not clearly argued this.

Applicants also argue that the declaration submitted on 2/28/06 establishes unexpected results for the size range of 20-95 nm. The examiner disagrees because Figure A in the declaration only compares a colloidal silica/polymer particle composition with a colloidal silica composition that does not contain polymer particles. Both EP references clearly teach the use of polymer particles in conjunction with silica particles (colloidal silica being obvious), thus the figure is not commensurate in scope with the teachings of the references. Even if such results are apparent, the claimed invention claims a broader range.

Applicants make a statement about the sizes disclosed by the EP references and that a showing of criticality for the claimed range can rebut a prima facie case of obviousness. The examiner is aware of this, however, EP 501 reference literally discloses inorganic size values that read on the claimed values (i.e. 50 nm as defined in section [0055] and 120 nm as defined in section [0059]). In view of the reference literally teaching the claimed size values, it is the

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examiners position that reliance on unexpected results of the claimed range can not be properly established. With respect to EP 836, the size range defined by this reference encompasses the claimed size range and applicants have not clearly established unexpected results for the size range, as claimed (i.e. a sufficient number of values inside and outside of the claimed range, inclusive of the end points).

Applicants also appear argue that the declaration submitted on 2/28/06 establishes unexpected results for the claimed mixture of colloidal silica and polymer particles (see bottom of page 8 of the remarks filed 10/16/06). The examiner disagrees because Figure A in the declaration only compares a colloidal silica/polymer particle composition with a colloidal silica composition that does not contain polymer particles. Both EP references clearly teach the use of polymer particles in conjunction with silica particles (colloidal silica being obvious), thus the figure is not commensurate in scope with the teachings of the references.

Applicants also state that the declaration is commensurate in scope with the claims, contrary to the examiner position defined in the previous office action. With respect to the polymers, the examiner disagrees about applicants position that the results are commensurate in scope with the claims because the results defined in the specification and declaration use specific types of polymers and thus do not show that any and all polymers within the scope of thermoplastic or thermosetting resins will yield the desired results. The results show no basis for interpreting that any and all polymers within the scope of the claims will provide the same results.

Applicants also state that the examiners characterization of the polymer particles (size thereof) in response to the above declaration (see bottom of page 9 of the remarks filed 10/16/06)



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is incorrect. The examiner acknowledges this and withdraws this comment, however, the size data defined in the declaration and specification is not commensurate with the formula defined in the claims. For instance, if the size of the colloidal silica is 130 nm, the size of the polymer particle is  $\leq 180$  nm, however, nowhere in the declaration or specification data shows criticality for this value or a value so close as to show a trend in the results for this value. The maximum value defined is 138 nm and this is well below size defined above. The same holds true for other size values for the polymer particles. In summary, the data does not show criticality for any and all sizes for the individual particles that meet the claimed formula and thus any data defined is not commensurate in scope with the claimed invention.

Applicants also argue the pH limitation in that none of the references disclose this value. To the contrary, this value is clearly disclosed by EP 836 and the pH in EP 501 is obvious for the above reasons. Applicants argue the pH of Ina et al. and Lui et al.. The examiner acknowledges these values but these references have not been applied for this purpose but rather to only show that the use of colloidal silica is obvious.

It would appear that applicant's arguments are against the references individually and one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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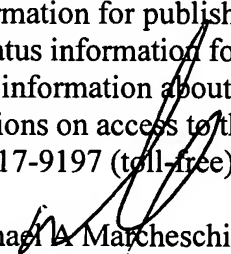
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

10/06  
MM

  
Michael A. Marcheschi  
Primary Examiner  
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